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| 10/594,805 | 09/28/2006 | Yusaku Yoshimatsu | PRM-0065 | 6723 |
| 23413 7590 01/21/2009 CANTOR COLBURN, LLP 20 Church Street 22nd Floor Hartford, CT 06103 | | | | |
| EXAMINER | | | | |
| GRUBB, MATTHEW | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 4126 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary

Application No.

10/594,805

Applicant(s)

YOSHIMATSU ET AL.

Examiner

MATTHEW GRUBB

Art Unit

4126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/28/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 6, 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-850)
- Paper No(s)/Mail Date 9/28/06, 12/07/06, 5/15/08
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 60. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: The specification appears to be a machine translation. Applicant needs to amend the specification to be more readable and easy to understand.

Appropriate correction is required.

Claim Objections

3. Claim 6 objected to because of the following informalities: Line 4 of Claim 6 contains the words "stats" and "till", which will be interpreted as "starts" and "until"

respectively for the purposes of this Detailed Action. Language in Claim 6 must be corrected. Appropriate correction is required.

4. Claim 11 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 claims an electronic apparatus including a power supply apparatus according to Claim 1. The power supply apparatus is an electronic apparatus including the power supply apparatus.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6, 8, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Katayama (6,469,483).

7. With regard to Claim 1, Katayama (6,469,483), herein after referred to as "Katayama," teaches a power supply apparatus comprising an oscillation control circuit which outputs a periodic signal having a predetermined amplitude (e.g., Figure 1, OSCILLATION CIRCUIT and CARRIER SIGNAL V_{osc}), a soft start circuit which outputs a soft-start signal in which potential rises or falls gradually (e.g., Reference 6a, 6b), and a control signal generation circuit which generates a control signal with which to supply

power supply, based on potential of the periodic signal generated by said oscillation control circuit and potential of the soft-starts signal (e.g., Figure 1, COMPARISON CIRCUIT), wherein said soft-start circuit has a clamping circuit which offsets the potential of the soft-starts signal by a predetermined amount either from ground potential or from supply potential (e.g., Reference V_M and 61 in combination with 6a and 6b). (See e.g., p3, column 5, lines 23-48).

8. With regard to Claim 2, Katayama teaches a power supply apparatus according to Claim 1, wherein the clamping circuit brings, in advance, the potential of the soft-start signal close to a minimum potential or maximum potential of the periodic signal before raising or lowering the soft-start signal (e.g., Figure 14, V_E (SWITCHING) is the soft-start signal brought, in advance, close to a minimum potential or maximum potential of the periodic signal by the Clamping circuit).

9. With regard to Claim 3, Katayama teaches a power supply apparatus according to Claim 2, wherein the clamping circuit sets, in advance, the potential of the soft-start signal substantially equal to the minimum potential or maximum potential of the periodic signal (e.g., Figure 14, V_E (SWITCHING) is the soft-start signal brought, in advance, substantially equal to the minimum potential or maximum potential of the periodic signal by the Clamping circuit).

10. With regard to Claim 4, Katayama teaches a power supply apparatus according to Claim 2, wherein when the soft-start signal is of a rising type, the clamping circuit sets the potential of the soft-start signal equal to or slightly smaller than the minimum potential of the periodic signal before the soft-start signal rises (e.g., Figure 14, V_E

(SWITCHING) is the soft-start signal of a rising type and the clamping circuit sets the potential of V_E to V_M – which is equal to or slightly smaller than the minimum potential of the periodic signal – before the soft-start signal rises).

11. With regard to Claim 6, Katayama teaches a power supply apparatus according to Claim 2, wherein the clamping circuit offsets the potential of the soft-start signal so that time delay between the timing at which the soft-start signal starts to rise or fall until the timing at which said control signal generation circuit outputs the control signal is reduced (e.g., Figure 14, shows the time delay t_{d2} of V_E (SWITCHING) being less than the time delay t_{d1} of V_E (NO SWITCHING)).

12. With regard to Claim 7, Katayama teaches a power supply apparatus according to Claim 1, wherein the clamping circuit regulates the potential of the soft-start signal within a range where it is greater than the ground potential and less than the supply potential (e.g., p3, column 5, lines 20-23).

13. With regard to Claim 8, Katayama teaches a power supply apparatus according to Claim 1, wherein said oscillation control circuits outputs a triangular signal or sawtooth signal (e.g., p1, column 1, lines 29-32 and Figure 14 shows a triangular or saw-tooth wave).

14. With regard to Claim 9, Katayama teaches a power supply apparatus according to Claim 1, wherein said control signal generation circuit is a comparator which compares the potential of the periodic signal with that of the soft-start signal (e.g., p1, column 1, lines 29-32 and Figure 1, COMPARISON CIRCUIT).

15. With regard to Claim 11, Katayama teaches an electronic apparatus including a power supply according to Claim 1 (e.g., pp1-2, column 2, line 66 – column 3, line 4).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (6,469,483) as applied to Claim 2 above. Katayama teaches a power supply apparatus as discussed above, wherein when the soft-start signal is of a rising type, the clamping circuit sets the potential of the soft-start signal equal to or slightly smaller than the minimum potential of the periodic signal before the soft-start signal rises (e.g., Figure 14, V_E (SWITCHING) is the soft-start signal of a rising type and the clamping circuit sets the potential of V_E to V_M – which is equal to or slightly smaller than the minimum potential of the periodic signal – before the soft-start signal rises). However, Katayama does not explicitly teach that when the soft-start signal is of a falling type, the clamping circuit sets the potential of the soft-start signal equal to or slightly higher than the maximum potential of the periodic signal before the soft-start signal falls. It was notoriously well known in the art at the time of invention that switching inputs to a comparator will switch the output. It would be obvious to one of ordinary skill in the art at the time of invention to switch the soft-start signal input to the comparator as described in Claim 5 to operate properly when attached to the opposing

terminal of the comparator. One of ordinary skill in the art would have been motivated to make such an alteration because this would allow for design flexibility while accomplishing the same power output.

18. Claim 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (6,469,483) as applied to claim 1 above, and further in view of Watanabe et al in U.S. Pub. No. US 2003/0048653. Katayama teaches a power supply apparatus as discussed above. Katayama does not teach that the power supply apparatus according to claim 1 is integrally integrated on a single semiconductor substrate. Watanabe et al (2003/0048653), herein after referred to as "Watanabe," teaches that an "IC (Integrated Circuit) card on which semiconductor circuit devices are mounted has come to be widely used" (e.g., p1, paragraph 0002). Watanabe also teaches a power supply circuit (e.g., Fig 1) mounted on a single semiconductor substrate (e.g., p3, paragraph 0033). It would have been obvious to one of ordinary skill in the art at the time of invention to modify the circuit taught by Katayama to be integrated on a single semiconductor substrate as taught by Watanabe et al as it has become widely used in the industry to integrate circuits on semiconductor substrates.

19. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katayama (6,469,483) in view of Tripathi et al in 6,577,512. Katayama teaches a power supply apparatus comprising an oscillation control circuit which outputs a periodic signal having a predetermined amplitude (Figure 1, OSCILLATION CIRCUIT and CARRIER SIGNAL V_{osc}), a soft start circuit which outputs a soft-start signal in which potential rises or falls gradually (Reference 6a, 6b), and a control signal generation circuit which

generates a control signal with which to supply power supply, based on potential of the periodic signal generated by said oscillation control circuit and potential of the soft-starts signal (Figure 1, COMPARISON CIRCUIT), wherein said soft-start circuit has a clamping circuit which offsets the potential of the soft-starts signal by a predetermined amount either from ground potential or from supply potential (Reference V_M and 61 in combination with 6a and 6b). (See e.g., p3, column 5, lines 23 – 48). Katayama does not teach that the power supply apparatus supplies power to a light emitting element. Tripathi, herein after referred to as "Tripathi," teaches that a power supply can be used to provide power to light emitting diodes (e.g., Figure 2, Reference 106). It would have been obvious to one of ordinary skill in the art at the time of invention to combine the power supply apparatus of Katayama in the display apparatus of Tripathi to reduce time delay of providing power to light emitting diodes or other light emitting elements as Katayama teaches as desired. (See e.g., p3, column 5, lines 23-48).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW GRUBB whose telephone number is (571)270-5710. The examiner can normally be reached on Monday-Thursday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TU NGUYEN can be reached on 571-272-2424. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James P. Hughes/
Primary Examiner, Art Unit 2883

/M. G./
Examiner, Art Unit 4126